florists at Christmas time, has the tip or apex of the fertile frond so contracted that it bears in some places the name of dagger fern.

The fertile fronds of the so-called "flowering ferns" are all very peculiar and puzzling to beginners until familiar with them. The Cinnamon Osmunda, for instance, bears in June within a circle of broad bright green sterile leaves a number of spikes of brilliant cinnamon colored spore cases, looking at a short distance exactly like clusters of tiny flowers. Again the Onocleas have spikes of tiny rolled up pinnules which inclose the spore cases, and which turn brown when ripe and resemble clusters of little nuts or seed vessels. The fertile fronds of the Ostrich Fern instead of being taller than the sterile ones, as is usually the case, are much shorter, only one quarter or a third as high, are rigid and upright and look much like dilapidated wornout quill feathers which some say gives the fern its name. But the green sterile leaves are also feather-like. Gather one when you have opportunity and place it in a vase of water. It will not live more than an hour or two, but will not shrivel up as so many do. Notice how gracefully the tip soon begins to droop and curl until it looks for all the world like a lovely green ostrich plume.

CAMBRIDGE, MASS.

Notes on American Ferns—XX[1]

WILLIAM R. MAXON

CHEILANTHES ALABAMENSIS (Buckl.) Kunze.—Though correctly ascribed to Arizona on the basis of specimens collected in the Huachuca Mountains by Lemmon in

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1882, this species has not been known otherwise from the area beyond western Texas. It is thus of interest to put on record a specimen collected in Big Canyon, Guadalupe Mountains, New Mexico, June 4, 1924, by Dana W. Lee (no. 158). The present material, though scant, is unmistakable.

CHEILANTHES AEMULA Maxon.—On the basis of specimens collected by Mr. James H. Ferriss in 1903 Clute long ago[2] recognized as specifically distinct from *C. microphylla* Swartz a Texas plant which D. C. Eaton had regarded as a subdeltoid form of that species, and listed it as *C. Moritziana* Kunze. Inasmuch as *C. Moritziana* is ordinarily ascribed only to northern South America, the writer recently sought the loan of the Texas material, and at Mr. Clute's suggestion Mr. Ferriss sent on two specimens, one being from New Braunfels, the other from Devil's River, Texas. They prove to be *C. aemula* Maxon,[3] a species closely related to *C. Moritziana*, known hitherto only from Mexico and represented by the following specimens in the National Herbarium: Tamaulipas, *Palmer* 187 (type), 297, 563, 564; San Luis Potosí, *Purpus* 4883, 5483; Veracruz, *Purpus* 2173; Nuevo León, *Pringle* 1988; Coahuila or Nuevo León, *Palmer* 1413. Of *C. Moritziana* the following material is at hand: Venezuela, *Robinson & Lyon; Pittier* 6139, 9550, 10216, 11559; *Eggers* 13341; *Rose* 21650; *Fendler* 65; Colombia, *Lehmann* 2217, 5441, 6057. From a comparison of these series it is seen that *C. Moritziana* differs constantly in its lesser size, its less strongly deltoid blades, its smaller, more distant, rounded, mostly cuneate segments, and its non-continuous indusia, as also in its much thin-

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[2] Fern Bull. **12**: 44. 1904.

[3] Contr. U. S. Nat. Herb. **10**: 495. 1908.

ner texture and in character and distribution of pubescence. In *C. aemula* the sori are confluent, the continuous indusia being only occasionally interrupted by a shallow indentation. The two Texas specimens have been presented to the National Herbarium by Mr. Ferriss, who states that the species is not uncommon in the region whence they came.

CHEILANTHES CASTANEA Maxon.—In the course of field work in the vicinity of Carlsbad Cavern, New Mexico, undertaken under the auspices of the National Geographic Society early last year, Mr. Vernon Bailey collected excellent specimens of this interesting species, which had been known previously only from Mexico (Coahuila, *Palmer* 1390, type; Hidalgo, *Pringle* 11277). Oddly enough, an additional specimen from western Texas turned up a few weeks later among a shipment of plants received from the University of Texas, this having been collected in the Davis Mountains, September 15, 1918, by Prof. B. C. Tharp (no. 2177). Another species is thus added to the United States fern flora.

Although both Mexican collections of *C. castanea*[4] were originally distributed as *C. gracillima* D. C. Eaton, a species ranging from British Columbia to Nevada and central California, the relationship is really with *C. Eatoni* Baker. From this *C. castanea* differs very evidently in its fewer and several times larger segments, which, though at first very thinly and loosely grayish-tomentulose above, are soon glabrate and at all stages are distinct and separate; in *C. Eatoni* the segments are closely enveloped and invariably held together by a mass of entangled hairs. *C. castanea* is less closely allied to *C. tomentosa* Link. The name alludes to the rich tawny

[4] Proc. Biol. Soc. Washington **32**: 111. 1919.

color of the spirally crispate hairs, which form a copious rather loose tomentum thickly covering the under side of the segments.

SELAGINELLA NEOMEXICANA Maxon.—This species was founded on several collections from the Organ Mountains of New Mexico and has since been reported only from the vicinity of Paradise, Arizona. An eastward extension of range is noted in specimens from Mt. Franklin, El Paso, Texas, recently received from Mrs. Elsie McE. Slater. The plants are said to have come from the perpendicular walls of a canyon on the southwestern flank of the mountain. It is apparently a rare species.

WASHINGTON, D. C.

Recent Fern Literature

The search for *Lycopodium* prothallia goes on[1] so successfully that the authors of one of the latest reports on them—Professors Alma G. Stokey and Anna M. Starr, of Mt. Holyoke College—say that they are probably much less rare than has been supposed—a statement which seems eminently justified by the commonness of mature plants which must have originated somehow. The difficulty is to see your first prothallium, or the tiny sporeling which indicates its probable presence; once your eye is trained and you have learned where to look and, maybe, the technique of sifting prothallia out of a trowelful of earth, finding them is a comparatively simple matter—though still one of care and patience.

Professors Stokey and Starr report seven stations in "western Massachusetts"—which in this case means the Connecticut valley—at which they have found prothallia. *L. obscurum* was represented at five of them, *L. clava-*

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[1] See FERN JOURNAL 13: 122, 1923.